REMARKS

This Amendment is submitted in response to the Office Action mailed on June 20, 2003. Claims 1 - 20 are pending, with claims 3, 4, 13, and 16 - 20 allowable if re-written, and the remaining claims rejected.

Claims 21 - 30 are added. A check in the amount of $ 432.00 is enclosed to cover the fee.

Claims 1, 2, and 15

Claims 1, 2, and 15 were rejected as obvious, based on Rochberger and Watanabe.

Claim 2

Claim 2 recites lack of acknowledgement.

Contrary to the PTO's assertion, Rochberger states that acknowledgement is transmitted. In fact, he states that certain types of messages are repeatedly sent, until an acknowledgement is received. (Column 4, lines 12 - 13.)

Thus, Rochberger is contrary to claim 2.

Claim 1

Claim 1 recites:

> 1. A method of operating a packet-switched network, comprising the

following steps:

a) at each node, repeatedly examining status of links connecting to the node; and

b) if a change in status is detected by a node, flooding the network with news of the change in messages which are self-propagating and self-terminating.

The Office Action asserts that Rochberger shows all elements except messages which are self-propagating and self-terminating. For that, Watanabe is cited.

EVEN IF REFERENCES COMBINED, CLAIM ELEMENTS ARE MISSING

The "token" in Watanabe's token ring network is cited as corresponding to the "messages." Applicant submits that several problems exist in this reliance on the token.

One problem is that the Office Action asserts that the token is "circulated along the channel at all times." (Office Action, page 5, second-to-last paragraph.) However, Watanabe states otherwise. He states that sometimes the token is not circulated, at which time an "idle pattern" is circulated. (Column 1, lines 31 - 33.)

A second problem is that claim 1 recites "messages," which is plural. Watanabe shows a **single** token.

A third problem is that claim states that the "messages" have **content**. "News of the changes" is contained in the messages. That

news is content. That has not been shown in Watanabe.

A fourth problem is that claim 1 recites a cause-and-effect relationship. It states that "**IF** a change" is detected, then flooding with the messages occurs. This cause-and-effect relationship creates its own series of sub-problems in relying on Watanabe.

One sub-problem is that the PTO makes an assertion which, in effect, states that the claimed cause-and-effect relationship is absent from Watanabe. The Office Action asserts that the token in Watanabe circulates "at all times." If that be so, then the recited cause-and-effect relationship is absent. If the token **always** circulates, then the circulation does not depend on any "change," as claimed. The PTO's assertion (of constant token circulation), if true, defeats the rejection of claim 1. If the assertion be true, then the recited cause-effect relationship is absent.

A second sub-problem is that the claimed cause-effect relationship is not, in fact, present in Watanabe. His token circulates when a party releases it, not constantly. To understand this, the basic operation of a token ring network must be understood.

Watanabe's Figure 3 shows the token ring 10. All nodes are connected in series, in a closed loop. Hence the name "ring." Suppose a printer is connected to node B. Suppose terminal TC

wants to print a document.

Terminal TC cannot be freely allowed to send data to node B. The reason is that terminal TA may simultaneously attempt the same thing. The data would collide. Node B would receive nonsense signals.

To handle this problem, a "token" is passed from node-to-node. Only a node holding the token can transmit data on the ring. Thus, terminal TC would wait for the token to arrive, and then take possession of it. At that time, terminal TC would use the printer at node B. Terminal TA would not. Then terminal TC would return the token to circulation.

Therefore, the claimed cause-effect relationship is not found in Watanabe. Claim 1 states that **IF** certain changes are found, **THEN** "news of the changes" is flooded, in specific types of messages. If that is to be found in Watanabe, then the "token" must contain the claimed "news." Applicant requests, under 37 CFR §§ 1.104(c)(2) and 35 U.S.C. § 132, that the PTO identify the claimed "news."

Further, if the "token" is to correspond to the "messages" of claim 1, then, if **NO "CHANGE"** is detected, no tokens would circulate. Plainly, that operation does not occur in Watanabe. The token circulates when a holder releases it, independent of detection of "change."

Consequently, even if the references are combined, claim 1 is

not attained.

REFERENCES ARE NON-ANALOGOUS

In addition, the references are non-analogous art, and cannot be combined. Rochberger shows a packet-switched network, like the Internet. There is no "token" which circulates, and grants access to the network, as in Watanabe.

Further, in a generalized packet-switched network, there is no overall ring-architecture (although some rings may exist).

Further still, the problem of Watanabe (data collision) does not arise in a packet-switched network. In Rochberger, a node transmits a packet to another node, whenever it wants. The packet may not travel immediately, because the data link leading to the other node may be busy, or the node itself may be busy. In either case, the data packet simply stands in a queue, waiting for the busy condition to terminate. There is no data collision problem, as in Watanabe.

NO LIKELIHOOD OF SUCCESS SHOWN

Still further, it is impossible to utilize a token in a packet-switched network, such as the Internet. Or at least the undersigned attorney cannot see how a token can be used. MPEP § 706.02(j) states:

Contents of a 35 U.S.C. 103 Rejection

. . .

To establish a prima facie case of obviousness, three basic criteria must be met.

. . .

Second, **there must be a reasonable expectation of success.**

. . .

The . . . reasonable expectation of success must both be found in the prior art and not based on applicant's disclosure.

If Watanabe is to be combined with Rochberger, then a token (as in "token ring") must be somehow combined with Rochberger's packet-switched network. Applicant requests that the reasonable expectation of success of this combination be explained.

NO TEACHING

Applicant submits that no teaching has been given in favor of combining the references. The rationale is that "continuous update of any failures in the network" is obtained. (Office Action, page 6, top.) However, Applicant submits that several problems exist in this rationale.

One is that the rationale contradicts a previous statement of the Office Action. On page 5, second full paragraph, the Office Action asserts that Rochberger "repeatedly" examines the links, and

that thus Rochberger shows claim 1(a). Since "repeatedly" has a very similar meaning to "continuous" as used in the PTO's rationale, it is clear that Rochberger, according to the PTO, **by himself** attains the goal of the rationale, namely, continuously updating the link data. There is no need for a combination with Watanabe, and the rationale does not lead to a combination.

A second problem is that, even if the references are combined, the goal set forth by the rationale is not attained. The "token" of Watanabe does not contain any information as to status changes in the links.

A third problem is that the rationale does not follow the CAFC's decision of In re Dembiczak, 175 F. 3d 994, 50 USPQ2d 1614 (Fed. Cir. 1999), discussed below. In brief, Dembiczak required factual findings of evidence. No such findings have been given.

For the preceding reasons, Applicant submits that the rejection should be withdrawn.

Claim 15

CLaim 15 recites:

> 15. Method according to claim 1, wherein the self-propagating messages lack stated destinations.

The Office Action asserts that Watanabe's token 10 lacks "stated destinations." However, Watanabe, column 1, line 25 et

seq., discusses a "destination address DA" within the token 10.

Further, as explained above, the "messages" of claim 1, and thus of claim 15, do not correspond to Watanabe's (single) token.

Claims 6 - 10

Claims 6 - 10 were rejected as obvious, based on Perlman and Rochberger.

Even if References are Combined, Claim Elements are Missing

Applicant submits that, even if the references are combined, claim 6, and its dependents, are not obtained.

Claim 6 recites:

> 6. A method of operating a packet-switched network, comprising the following steps:
>
> a) at an originating node,
>
> i) generating a message which reports a change in status of a link;
>
> ii) transmitting the message to the neighbors of the originating node;
>
> b) at each neighbor,
>
> i) storing the message if the neighbor does not know of the change; and
>
> ii) transmitting **the message** to neighbors of the neighbor.

Perlman is cited to show all of claim 6 except claim 6(b)(ii), for

which Rochberger is cited.

Two passages in Rochberger are relied on. One is column 8, lines 14 - 21. A typographical error must have occurred, because this passage has no relevance to the claim element in question. This passage in Rochberger discusses computation of routing, based on costs (eg, time) of certain links.

The other passage is column 3, lines 25 - 27. However, in that passage, together with its context, Rochberger states that each node in a "peer group" contacts its

> . . . immediate neighbors to determine it's neighbor's local state information. The state information includes . . . status of its links to its neighbors.
>
> (Column 3, lines 21 - 25.)

For example, node A contacts neighbors N1, N2, N3, etc., and learns the status of the links. Applicant points out that, under the grammar of the passage, the "links" whose status are determined are the links between node A and its neighbors, not the links extending from the neighbors to others.

Then, node A floods the state information to all members in the peer group. (Column 3, lines 25 - 27, which is the passage relied on by the Office Action.)

Applicant points out that the latter flooding does not correspond to claim 6. Claim 6(b) states that **the neighbor**

transmits "the message" to "neighbors of the neighbor." These two elements are not present in Rochberger.

"The message" in claim 6(b) is that of claim 6(a). Perlman is cited to show that message. Perlman states that a "replacement packet" is sent if a change in status of a link is detected. (Column 4, lines 3 - 8.) Assume arguendo that this "replacement packet" qualifies as the "message" of claim 6.

No corresponding "message" is found in the cited passages in Rochberger. The cited passages in Rochberger refer to **initialization** procedures. They refer to the **first status information** which is transmitted. The concept of a "change" in status of a link does not arise. Thus, no "message" about that change can exist.

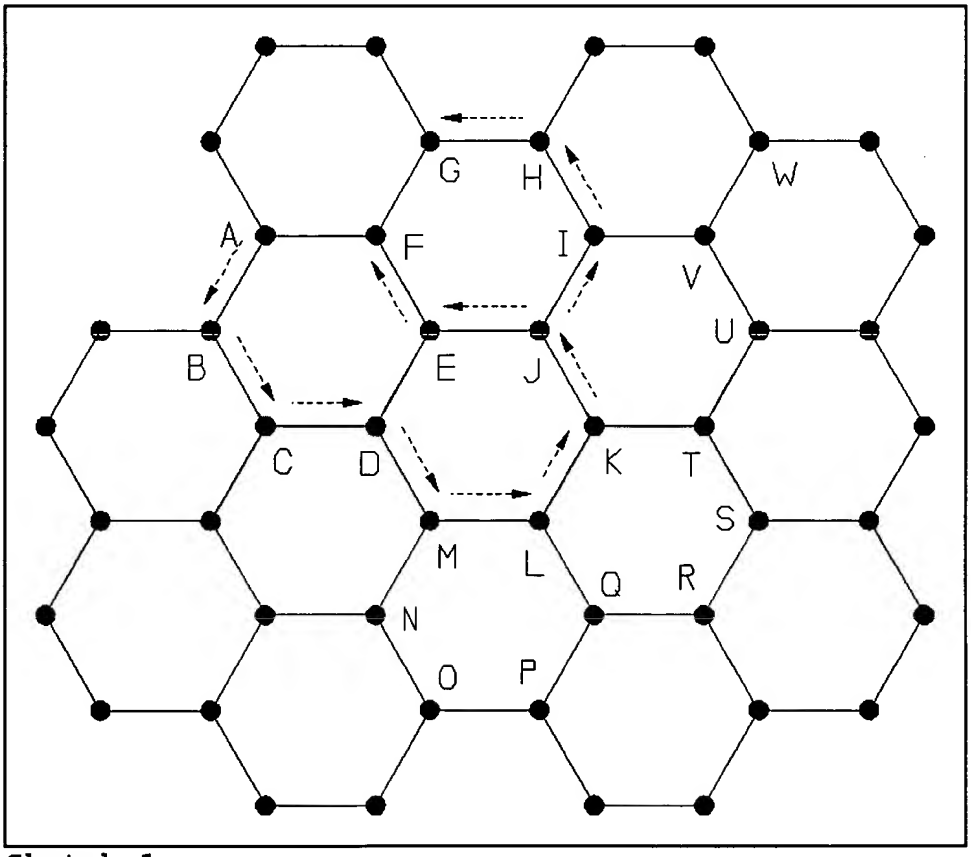
By analogy, if you meet an old friend, you may say, "You've lost weight. Have you been working out ?" You noticed a **change**. However, if you meet a complete stranger, you cannot refer to any such change. Similarly, in Rochberger, the packets in question do not report changes.

As to the second element, Rochberger's neighbor does not perform the transmitting of claim 6(b)(ii). Again, that claim paragraph states that "the message" is transmitted by "the neighbor" to "neighbors of the neighbor."

Rochberger states that one node "floods" the peer group. That does not necessarily mean that the node sends packets to all its

neighbors, who then send packets to all their neighbors, who send packets to all their neighbors, and so on. This was explained in Applicant's previous Amendment, beginning on page 3.

For example, that Amendment points out that claim 6 states that "**EACH** neighbor" transmits the message to its own neighbors. That has not been shown in Rochberger. Rochberger's reference to "flooding," by itself, does not show that, as Sketch 1, below, illustrates.



Sketch 1

Node A in Rochberger could perform flooding by transmitting packets along the dashed arrows in Sketch 1. In this example, node F, which is a "neighbor" of A, receives its packet as indicated. But node F transmits no packets to its neighbors. Thus, claim 6(b)(ii) is absent from Rochberger, or at least it has not been shown, since Rochberger could operate as Sketch 1 indicates.

No Teaching

Applicant submits that no valid teaching has been given in favor of combining the references. The rationale given is that "efficient update of link status to all nodes in system" is obtained by the combination. (Office Action, page 3, top.) However, several problems exist in this rationale.

One is that it is a naked conclusion, unsupported by evidence. That is, each reference **individually** discusses a type of updating of link status. No evidence has been given as to why the **combination** of references is more efficient, or desirable on the basis of efficiency.

A second problem is that the term "efficient" has not been defined. Thus, it is not possible to verify whether the Office Action's statement is correct. Nor is it possible to verify whether the combination of references is more, or less, efficient than the individual references.

A third problem is that, assuming that "efficient" can be

defined, the PTO's rationale merely sets forth a supposed characteristic of the references, once combined. That is not a teaching under section 103. MPEP § 706.02(j) states:

> Contents of a 35 U.S.C. 103 Rejection
>
> . . .
>
> To establish a prima facie case of obviousness, three basic criteria must be met.
>
> First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings.
>
> Second, there must be a reasonable expectation of success.
>
> Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations.
>
> The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art and not based on applicant's disclosure.

The MPEP's "first" criterion states that a teaching is required "to combine the reference teachings." Identifying a characteristic of the references, once combined, is not such a teaching.

Stated another way, until the required teaching is given, the references remain conceptually separate. Thus, the supposed efficiency obtained by the combination does not exist.

A fourth problem is that the rationale does not follow the CAFC's decision of In re Dembiczak, 175 F. 3d 994, 50 USPQ2d 1614 (Fed. Cir. 1999).

In brief, Dembiczak states that

-- **objective evidence** of a teaching for combining references must be provided;

-- the Examiner's speculation does not qualify as objective evidence;

-- numerous sources can provide a teaching to combine references;

-- knowledge of one skilled in the art can act as a source;

-- however, THE RANGE OF SOURCES AVAILABLE DOES NOT DIMINISH THE REQUIREMENT FOR ACTUAL EVIDENCE;

-- broad conclusory statements by the Examiner do not qualify as evidence; and

-- "particular factual findings" as to the teaching are required, and gives reasons why **facts** are necessary.

No particular factual findings have been given, and it appears that the PTO is relying on "broad conclusory statements," which are prohibited by Dembiczak.

Logical Problem

Applicant submits that the combination of references is actually contrary to logic. Claim 6(b)(i) recites certain actions which are taken, with respect to a "message." The PTO relies on certain data in Perlman to show that message.

Then, claim 6(b)(ii) recites additional actions taken, **with respect to that SAME message**. The PTO relies on Rochberger to show the latter actions.

Applicant submits that it makes no logical sense to rely on Rochberger to show claim 6(b)(ii), because Rochberger does not show the "message" of claim 6(a). The PTO itself admits that.

Applicant submits that, until an explanation is given as to why Perlman's supposed message of claim 6(a) somehow corresponds to a message in Rochberger, the combination of references cannot be made. Because it makes no sense to process Perlman's message using Rochberger's procedures.

From another point of view, until a showing is made that Rochberger somehow solves a problem related to the "message" in Perlman, Rochberger is non-analogous art.

Therefore, Applicant submits that the rejection of claim 6 should not stand. This applies to the claims depending from claim 6.

CLAIM 7

Claim 7 states that no acknowledgement is transmitted. Rochberger is cited to show this. It may be correct that the two passages cited in the Office Action on page 3 do not discuss acknowledgement.

However, Rochberger does state that acknowledgement is transmitted. In fact, he states that certain types of messages are repeatedly sent, until an acknowledgement is received. (Column 4, lines 12 - 13.)

MPEP § 2143.03 states:

> To establish prima facie obviousness . . . **all the claim limitations** must be taught or suggested by the prior art.

CLAIMS 8 AND 9

The Office Action relies on Rochberger, column 5, lines 63 - 68, and column 6, lines 1 - 6, to show claim 8. However, claim 8 states that the message is assigned an age, and the age is decremented by a certain party. The passages in Rochberger cited by the PTO do not show that.

The former passages discusses a request by a node for certain data, and transmission of the data. The latter passage discusses events occurring after that transmission. Neither corresponds to claim 8.

Further, in claim 8, the "message" in question is that of claim 6. As explained above, that message does not exist in Rochberger.

This applies to claim 9.

CLAIM 10

Claim 10 recites that the neighbor discards the message, if previously received. The PTO relies on Rochberger, column 6, lines 7 - 21 to show this. But that passage does not show claim 10.

Further, the type of flooding which occurs in Rochberger has not been explained by the PTO. In one type of flooding, 100 copies of a message could be sent, each addressed to one of 100 nodes, 100 different addresses total. In this case, no node would receive a duplicate, so the need for the type of discarding recited in claim 10 would not be present.

Further still, the passage relied on in Rochberger is no longer discussing the data packets previously relied on to show messages of the parent claims. The passage is not relevant.

Claims 5 and 14

Claims 5 and 14 were rejected as obvious, based on Perlman and Crawley. Claim 5 recites:

> 5. A method of operating a packet-switched network, comprising the

following steps:

a) generating reports of status of links in the network;

b) propagating the reports to all nodes in the network;

c) at some nodes, replacing the propagating reports, by new reports;

d) propagating the new reports to all nodes in the network; and

e) repeating steps (c) and (d).

An example of 5(c) and (d) is found in the Specification, page 22 et seq., in the section entitled "**Selected Properties of a Network Which Follows the Rules**, Termination of Flooding."

One example of termination is given where a packet of age zero is nevertheless propagated. However, when that packet reaches its originating node, the node replaces it with a new packet, which is then flooded.

The Office Action purports to find this action in Perlman, column 4, lines 3 - 19. However, that passage merely refers to generating a packet if status of a link changes. It does not discuss "**replacing** the propagating reports, by new reports," as in claim 5.

The Office Action asserts that, in Perlman, when a link changes, a "replacement packet" is generated. However, that is not correct, nor does it show the parts of claim 5 in question.

One reason is that the PTO is **presuming** that packets are propagating in Perlman when that link changes. That is, a "propagating" packet may indicate that link A is operating properly. The packet may supposedly propagate for minutes or hours. If that packet reaches a node, and simultaneously link A becomes inoperative, then, according to the Office Action, that node would replace the packet with a new one.

The problem with all this is that Perlman does not discuss that type of operation. He sends out LSPs to destinations. The propagation delay is nearly instantaneous, like e-mail on the Internet. The packets are not deliberately caused to bounce around for extended periods, as under the invention. At least, that has not been shown in Perlman.

Thus, the PTO's proposed scenario, wherein (1) a node receives a packet which describes status of a link, (2) the status changes, and (3) the node replaces the packet with a new packet which correctly describes the status, does not occur.

The Office Action finds claim 5(e) in Crawley. However, no valid teaching has been given for combining the references. The rationale given is that the combination provides "continuous update" of link failures.

However, the goal of obtaining "continuous update" does not actually lead to the **combination** of references. Crawley, **by himself**, provides that goal.

Further, the rationale does not set forth a valid teaching under section 103. It only sets forth a supposed characteristic of the references, but **after** combining them. That is not a teaching for making the combination in the first place.

Claim 14

The passage in the Office Action, bottom of page 4 - top of page 5, fails to cite any subject matter in any reference. That passage only sets forth a hypothetical mode of operation of some unidentified system.

That is insufficient to show claim 14.

Claims 11 and 12

Claims 11 and 12 were rejected as obvious, based on Perlman and Rochberger.

Claim 11 recites, in part:

> c) after all nodes have received the message, taking steps which cause termination of propagation of the message, without informing the originator of receipt of the message by nodes.

Claim 11(c) states that the "steps" are undertaken "after all nodes have received the message." That has not been shown in the references, even if combined.

Claim 11(c) also recites the absence of informing the

originator. As explained above, Rochberger does, in fact, transmit acknowledgements.

The rationale for combining the references is that the combination allows for detection and propagation of status changes. However, both Perlman and Rochberger, by themselves, accomplish that. There is no reason to combine the references to attain that goal.

Claim 12 is considered allowable, based on its parent.

Added Independent Claims

Added claims 21 and 22 are similar to claims already allowable, but are written in terms of an individual node. For this reason, claims 21 and 22 are considered allowable.

The remaining added independent claim, claim 23, is considered allowable because the features of paragraph (c)(i) are not seen in the applied art.

Conclusion

Applicant requests that the rejections to the claims be reconsidered and withdrawn.

Applicant expresses thanks to the Examiner for the careful consideration given to this case.

Respectfully submitted,

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COMPLETE LISTING OF CLAIMS

1. (Original) A method of operating a packet-switched network, comprising the following steps:

a) at each node, repeatedly examining status of links connecting to the node; and

b) if a change in status is detected by a node, flooding the network with news of the change in messages which are self-propagating and self-terminating.

2. (Original) Method according to claim 1, wherein nodes receiving the self-propagating messages do not acknowledge receipt to another
node.

3. (Original) Method according to claim 1, and further comprising the following step:

c) if a node detects no change in status of a link for a predetermined interval T2, then flooding the network with news of the status existing at time T2.

4. (Original) Method according to claim 3, and further comprising repetition of the steps of paragraphs (a) and (b) after

that of paragraph (c).

5. (Original) A method of operating a packet-switched network, comprising the following steps:

a) generating reports of status of links in the network;

b) propagating the reports to all nodes in the network;

c) at some nodes, replacing the propagating reports, by new reports;

d) propagating the new reports to all nodes in the network; and

e) repeating steps (c) and (d).

6. (Original) A method of operating a packet-switched network, comprising the following steps:

a) at an originating node,

i) generating a message which reports a change in status of a link;

ii) transmitting the message to the neighbors of the originating node;

b) at each neighbor,

i) storing the message if the neighbor does not know of the change; and

ii) transmitting the message to neighbors of the neighbor.

7. (Original) Method according to claim 6, wherein the neighbors do not transmit acknowledgement of receipt of the message.

8. (Original) Method according to claim 6, wherein the message is assigned an age, and the neighbor of paragraph (b) decrements the age, prior to transmission to the neighbor's neighbors.

9. (Original) Method according to claim 8, wherein the neighbors of the neighbor further decrement the age.

10. (Original) Method according to claim 6, wherein the neighbor of paragraph (b) discards the message if the neighbor has previously received the message.

11. (Original) A method of operating a packet-switched network, comprising the following steps:

a) at an originating node,

i) generating a message which reports a change in status of a link;

ii) transmitting the message to neighbors of the originating node;

b) propagating the message, until all nodes have received the message; and

c) after all nodes have received the message, taking steps which cause termination of propagation of the message, without informing the originator of receipt of the message by nodes.

12. (Original) Method according to claim 11, wherein the steps of paragraph (c) include the steps of replacing the message with a newer message.

13. (Previously added) Method according to claim 1, wherein (1) the messages are received by nodes in the network, (2) the nodes are equipped with rules to follow, and (3) following the rules makes the messages self-propagating and self-terminating.

14. (Previously added) Method according to claim 5, wherein the nodes of paragraph (c) include nodes which originated the propagating reports.

15. (Previously added) Method according to claim 1, wherein the self-propagating messages lack stated destinations.

16. (Previously added) Method according to claim 1, wherein

at least some propagating packets return to the node originating them.

17. (Previously added) Method according to claim 5, wherein at least some propagating packets return to the node originating them.

18. (Previously added) Method according to claim 6, wherein at least some propagating packets return to the node originating them.

19. (Previously added) Method according to claim 11, wherein at least some propagating packets return to the node originating them.

20. (Previously added) Method according to claim 5, wherein reports continue to propagate after all nodes have received them.

21. (New) A method of operating a base node in a packet-switched network, comprising the following steps:

a) repeatedly examining status of links connecting to the base node; and

b) if a change in status is detected, flooding the network with news of the change, in messages which are

directed to nodes in the network, which messages become self-propagating and self-terminating because of rules which the nodes follow.

22. (New) A method of operating a node in a packet-switched network, comprising the following steps:

a) repeatedly examining status of links connecting to the base node;

b) if a change in status is detected by a node, flooding the network with news of the change in messages which are self-propagating and self-terminating; and

c) after flooding, receiving at least some of the propagating packets at the base node.

23. (New) A method for use with a base node within a network, comprising:

a) maintaining a status table which indicates operational status of data links in the network;

b) testing operability of data links connected to the base node;

c) if testing indicates a data link DEF connected to the base node is defective,

i) generating a new Route Status Packet, RSP, which identifies

A) identifies the defective data link DEF,

B) identifies the base node as originator of the new RSP,

C) contains an initial age of the RSP, and

D) contains a sequence number of the RSP; and

iii) transmitting copies of the new RSP to all neighbors of the base node, but not using data link DEF.

24. (New) Method according to claim 23, and further comprising:

d) if an incoming RSP originating from another node N is received at the base node,

i) comparing the incoming RSP with previous RSPs received from node N, and

A) if the incoming RSP has a sequence number exceeding that of a previous RSP received from node N, then

1) accepting the incoming RSP, and

2) using data in the incoming RSP to update the status table;

B) if the incoming RSP has a sequence number which does not exceed that of a previous RSP received from node N, discarding the incoming RSP.

25. (New) Method according to claim 24, and further comprising:

e) using data in the incoming RSP to update the status table,

f) decrementing age of the RSP, and

g) transmitting copies of the age-decremented RSP onto links leading from the base node.

26. (New) Method according to claim 24, and further comprising:

e) receiving an incoming RSP at the base node; and

f) ascertaining whether the incoming RSP received is a copy of an RSP previously originated by the base node and, if so, discarding the RSP.

27. (New) Method according to claim 24, and further comprising:

e) at the base node, queuing data packets which would be transmitted over the defective data link DEF, while data link DEF is defective.

28. (New) Method according to claim 27, and further comprising:

f) when the base node receives information indicating that data link DEF is operational, transmitting the queued data packets onto data link DEF.

29. (New) Method according to claim 28, and further comprising:

g) updating the status table at the base node, to indicate correct status of data link DEF.

30. (New) Method according to claim 27, and further comprising:

f) for packets in the queue, generating substitute routes using operational links, and initiating a process of emptying the queue, using the substitute routes.